INTRODUCTION

Platts methodologies are designed to produce price assessments that are representative of market value, and of the particular markets to which they relate. Methodology documents describe the specifications for various products reflected by Platts assessments, the processes and standards Platts adheres to in collecting data, and the methods by which Platts arrives at final assessment values for publication.

Platts discloses publicly the days of publication for its price assessments, and the times during each trading day in which Platts considers transactions in determining its assessments levels. This schedule of publication is available on Platts website, at the following link: http://www.platts.com/HolidayHome.

The dates of publication and the assessment periods are subject to change in the event of outside circumstances that affect Platts ability to adhere to its normal publication schedule. Such circumstances include network outages, power failures, acts of terrorism and other situations that result in an interruption in Platts operations at one or more of its worldwide offices. In the event that any such circumstance occurs, Platts will endeavor, whenever feasible, to communicate publicly any changes to its publication schedule and assessment periods, with as much advance notice as possible.

Platts methodologies have evolved to reflect changing market conditions through time, and will continue to evolve as markets change. A revision history, a cumulative summary of changes to this and previous updates, is included at the end of the methodology. Methodology is reviewed regularly to ensure it reflects current market reality. Such reviews are carried out by Platts reporters and their managers, supplemented and supported by price methodology specialists who operate separately from the reporting teams. Platts follows a clearly defined process for public consultation on material changes to its methodologies. This process is based on full transparency and communication with industry stakeholders aimed at gaining market acceptance for any proposed introduction or changes to methodology. For more information on the review and approval procedures, please visit: https://www.platts.com/methodology-specifications/moc/moc-change-process

All Platts methodologies reflect Platts commitment to maintaining best practices in price reporting.

How this methodology statement is organized

This description of methodology for assessments is divided into seven major parts (I-VII) that parallel the entire process of producing the end-of-day price values.

- Part I describes what goes into Platts assessments, including details on what data market participants are expected to submit, the process for submitting data and criteria for timeliness of market data submissions, as well as the editorial collection of input data from market sources.
- Part II describes any security and confidentiality practices that Platts uses in handling and treating data, including the separation between Platts price reporting and its news reporting.
- Part III is a detailed account of how Platts collects bids, offers, trades and other market data, and what Platts does with the data to formulate its assessments. It includes descriptions of the methods that Platts uses for reviewing data, and the methods used to convert raw data into assessments. This also includes the procedures used to identify anomalous data. This section describes how and when judgment is applied in this process, the basis upon which transaction data may be excluded from a price assessment, and the relative importance assigned to each criterion used in forming the price assessment. This section describes the minimum amount of transaction data required for a particular price assessment to be published. This is based on reported transactions and other market information. Finally, this section describes how Platts addresses assessment periods where one or more reporting entities submit market data that constitute a significant proportion of the total data upon which the assessment is based.
- Part IV explains the process for verifying that published prices comply with Platts standards.
- Part V lays out the verification and correction process for revising published prices and the criteria Platts uses to determine when it publishes a correction.
- Part VI explains how users of Platts assessments can contact Platts for clarification of data that has been published, or to share a complaint. It also describes how to find out more about Platts complaint policies.
- Part VII is a list of detailed specifications for the trading locations and products for which Platts publishes assessments for a particular commodity. This section describes why specific units of measurement are used, and what conversion factors are used to move between units of measurement, where relevant.

PART I: INPUT DATA

Platts objective is to ensure that input data that editors use as the basis for their price assessments is of the highest quality. Ensuring that data used in Platts assessments is of high quality is crucial to maintaining the integrity of Platts various price assessment processes.

Platts encourages entities that submit any input data for consideration in its assessment processes to submit all market data that they have which may be relevant to the assessment being made. Platts aim is to determine the full circumstances surrounding all reported transactional data, including details of quality, specifications, order sizes, dimensions, lead times and any locational and loading/delivery information. Platts uses that...
information to determine a typical and repeatable market level for the commodity being assessed.

**Reporting data to Platts**

Platts assesses a variety of different markets and commodities. In some of these Platts receives information from back office functions. However, in many markets back office functions are not best placed to communicate relevant market data to Platts editors, and in these instances Platts has processes in place to ensure that data is corroborated either through reviews of entities participating in its process, or through source validation and publication of information.

As part of its standard editorial practise, Platts routinely reviews the companies participating in its price assessment processes. These reviews ensure the suitability of data and information that are used to formulate Platts end-of-day price assessments. These reviews are conducted on a regular basis, and may take into consideration an array of issues including, but not limited to, adherence to editorial guidelines, operational and logistical issues, as well as counterparty acceptance. Further details concerning Platts MOC Participation Guidelines can be found online at [https://www.platts.com/market-on-close](https://www.platts.com/market-on-close).

The reviews are not designed to impede a company's ability to bilaterally engage in market transactions; the objective at all times is to ensure the integrity of published price assessments. Platts does not disclose the nature or scope of routine reviews of data providers that participate in its price assessment activities.

Platts may consider verifiable data reported and published through the day as provided for publication by individual sources, through established editorial methods.

Platts has developed guidelines for Management of Sources that address source identification, source evaluation, source development, using source information and source dependency. Individual sources are verified as per Platts Source Management Guidelines.

Platts considers several criteria as whether to use source information. These criteria include:

- Company reputation
- Source position within a company
- Source understanding and knowledge of the market in question
- Ability of source to provide relevant, valuable information
- Ability of Platts to verify information with other sources
- Source credibility

**What to report**

Platts encourages all market participants to submit all data that may be relevant to Platts assessments, including but not limited to:

- Firm bids that are open to the marketplace as a whole, with standard terms
- Firm offers that are open to the marketplace as a whole, with standard terms
- Expressions of interest to trade with published bids and offers, with standard terms
- Confirmed trades
- Indicative values, clearly described as such
- Reported transactional activity heard across the market, clearly described as such
- Other data that may be relevant to Platts assessments

**How to report**

Platts accepts any reasonable method of delivery/communication for information provided for publication in real-time, including for bids, offers and transactions. Platts editors typically communicate with market participants through phone, eWindow (if relevant) and/or online instant messaging systems.

Platts tries to accommodate the communication needs of its customers and will endeavor to open any additional communication channels required. Other means of communication, such as emails during the assessment process, are acceptable but are considered to be atypical. If a market participant chooses to communicate with Platts editorial using such atypical means, this needs to be highlighted well ahead of the assessment process.

The following reporting methods are accepted by Platts editorial staff:

- Commonly used Instant Messaging software
- eWindow
- Telephone
- Email

Reporters covering the markets in Asia and the Middle East are contactable from around 09:30 to around 18:30 Singapore time, those covering Europe and Africa from around 09:30 to around 18:30 London time, and those covering the Americas from around 08:30 to around 17:30 Houston time.

**MOC data publishing principles**

The Platts Market on Close (MOC) assessment process establishes core standards for how data is collected and published, how data is prioritized by value, and ultimately how data is analyzed in the course of completing Platts assessments.
Transparency underpins Platts data publishing processes. Under Platts MOC guidelines for collecting and publishing data, Platts publishes market information including but not limited to firm bids and offers, expressions of interest to trade and confirmed trades that are received from market participants throughout the day.

This information is published in real-time, as it is received, on Platts information services. Platts publishes all information received so that it can be fully tested by the market at large. Information collected and published includes the identities of buyers and sellers, confirmed prices, volumes, location, and stated trading terms.

Platts assessments are designed to reflect repeatable market value at the close of the assessment process. Platts tracks market price evolution during the entire day, and publishes a wide range of data relating to market value as it does so. All data that has been published through the day is analyzed during the assessment process. Towards the close of the day, Platts focuses its assessment process to publish named firm bids and offers, expressions of interest to trade and confirmed trades, with all relevant details. This transparent data is prioritized in the assessment process, because it is available to the entire market for testing.

In order to ensure that all firm bids and firm offers that still stand at the close of the assessment process have been fully tested in the market at large, Platts has established clearly defined time cut-offs that apply when publishing firm bids and firm offers in the MOC process. Time cut-offs for the submission and subsequent publication of new bids and offers are applied so that MOC participants cannot bid or offer late in the process, and to ensure that every bid and offer published by Platts is logistically executable.

Bids and offers published by Platts are considered to be firm until Platts is informed otherwise, or until the close of the assessment process for the day, whichever comes first. Platts expects all participants in the MOC process to be contactable at all times.

Platts will consider all firm bids and offers as open to the market at large and executable unless informed otherwise by the counterparty submitting the market information. If no communication is made to Platts to withdraw or change the parameters of the bid or offer it is assumed that it is available to the marketplace. Platts seeks verification of any transaction originating from a bid or offer submitted for inclusion in the Platts MOC process.

Input data may also include fully and partially confirmed bids, offers and trades, notional trading values and other market information as provided for publication by individual sources, through established editorial methods.

Market reporters endeavor to verify all market information they receive, including by testing it within the market through the publishing process. Trades reported as executed are verified as being executed and Platts ensures that any firm bids/offers reported are available to the market as a whole.

Platts uses various techniques to confirm the quality of data it receives, including cross checks with counterparties as well as requests for supporting documentation. Platts eliminates data in the price assessment process that cannot be verified in the market to the extent deemed appropriate.

All Platts market reporters are trained to analyze the data they receive and to question sources to establish the fullest set of information possible around price data. Reporters are trained to seek a wide variety of information to test reported transactional activity, including the specific price agreed, the counterparty to the trade, the point of origin and destination for delivery of the commodity, the size of the transaction, any physical quality commitments agreed as part of the trade, the terms and conditions of a trade and when a trade was agreed.

Platts publishes the most relevant information collected that meets its methodological standards, typically through real-time information services and with as much transparency as possible in order to test information within the market.

MOC data submission process
Platts has specific guidelines around data submissions to ensure high quality of information in the assessment process. This includes detailed guidelines on timings for submissions, which can be found in the specific guide for each commodity process. The purpose of the time cut-offs is primarily to ensure logistical executability and standards of incrementability and repeatability to ensure an orderly assessment process. As such, they may be changed at short notice if evolving market conditions require.

To ensure proper dissemination of market information, new bids and offers for publication by Platts must be received by Platts no later than stated cut-off periods.

In order to ensure that all published data is fully tested in the market, Platts has established guidelines around how quickly bids and offers may be improved when they have been published, and by what amount. These incrementability guidelines define the quantum and speed at which bids and offers may typically be improved in the MOC assessment process. Incrementability does not apply to bids and offers that are moving away from market value, though Platts analyzes bids and offers that are moved lower, and higher, respectively, to ensure reasonability.

Platts may notify the market of any adjustment to the standard increments in the event of market volatility or a disruptive event. A market participant can withdraw a bid or offer from Platts MOC process at any time, so long as no other potential trading counterparty has indicated that it has interest to buy or sell into the bid/offer.

Platts expects that market participants bidding and offering in the MOC process should perform on their bid/offer with the first company of record to express interest to Platts for publication during the MOC process. In the event of a dispute on the timing, Platts will review its records and determine which company communicated to Platts first its intention to execute on a bid/
offer displayed on the Platts systems. Platts prioritizes data on the basis of timeliness. This sequence is critical for an orderly assessment process.

Platts editorial guidelines governing its assessment process require it must consider only those transactions, bids or offers where market participants perform under typical contractual terms. Platts accepts that individual companies may have trading limits with counterparties and that national legislation may prevent companies from dealing in materials of certain origins. Such counterparty issues are dealt with on a case-by-case basis.

All bids and offers are firm from the moment of submission.

Submissions of bids, offers or transactions should not be considered as received by Platts unless acknowledged as received by Platts. For communication initiated by phone Platts will consider the time when the trader actually communicated the bid/offer or transaction. Acknowledgment may take the form of "yes," "OK," "y," "k," or any other reasonable forms, including by sending back the published information. Platts recognizes the time of receiving a message of a company's intent to buy/sell, as opposed to the time a message was sent by the trading party.

Bids and offers submitted on time but in an incomplete form, where the terms are only clarified after the cut-off deadline, will not be used in the assessment process.

As a general recommendation Platts advises market participants not to wait for the last possible minute before the cut-off deadlines for bids and offers, as the communication may not be completed on time.

A buyer or seller can communicate with Platts directly to express buying or selling interest. Platts may also take into consideration bids and offers made via a broker, provided the buyer or seller have communicated to Platts that they have authorized the broker to speak on their behalf.

Platts only considers for publication and assessment transactional interest that is expressed by participants for bids or offers that have already been published by Platts. Interest in bids or offers at prices that have not been published, and therefore may not be fully available for testing in the marketplace as a whole, may be disregarded. Should a buyer lower its bid or a seller increase its offer, an expression to trade at a previously published level will not be considered.

Platts editorial processes require full clarity when communicating bids/offers and intentions to trade. When expressing an intention to hit a bid or lift an offer in the MOC processes, any message should typically include the specific price of the trade and the name of the counterparty. Information may not be published if it is not sufficiently clear when communicated to Platts.

Following any trade, an intention to rebid or reoffer must be received by Platts as soon as is possible and within a reasonable time frame, as per incrementability guidelines.

Unless sellers/buyers expressly inform Platts of their continued interest to buy/sell after a deal, Platts will presume the original buyers or sellers are not there for additional volume.

A rebid or reoffer must match the initial position's parameters, with the exception of price. A rebid or reoffer can be made at the same level or inferior to the traded price. For example Company B hits Company A's bid for $100/mt during the MOC. Company A can rebid at $100/mt or below this level. If the MOC process for the market includes a "freeze" period at the close of the process, bids and offers may only be repeated at the last published price.

When there are multiple bids or offers at the same level, the first participant to reach that level should be the first to be traded. Subsequent deals will go to the second, third and fourth participant at the same level. When a participant is traded, any repeat of their bid/offer will move to the back of the bid/offer queue.

Platts will consider the first participant to express their interest in a bid or offer to be the counterparty for the subsequent trade. Platts will monitor time stamps in the event of a dispute to determine who the first buyer or seller was. In the event of a bid or offer being repeated, the queue of participants expressing interest in that position will be reset. Platts will not consider any interest expressed in a rebid or reoffer before the position is published to be executable during the MOC assessment process.

After a bid or offer is published, only price can be changed, while in certain markets volume may be adjusted to be multiples of a minimum volume. The quality or loading/delivery timing cannot be changed. Buyers or sellers can withdraw bids/offers at any time, provided no prior interest to transact has been expressed by any potential counterparty. If a participant trades another position during the MOC assessment process, they must communicate to Platts if they wish to withdraw their existing position following the trade. Otherwise, it is assumed the participant's own position remains active.

All participants that have reported bids and offers for publishing in the Platts process are expected to promptly report any transactions stemming from available bids or offers reported to Platts as part of the MOC assessment process.

Platts synchronizes its computer clocks every day precisely, and will compare the time of any submitted bid, offer or transactional interest against this synchronized time. Please note that Platts applies the timing deadlines strictly.

For the purposes of clock synchronization, market participants may find the following internet link to be helpful: www.time.gov. This link offers an atomic clock reading for US time zones.

In markets where Platts eWindow is in operation, the eWindow clock will be used to determine the correct sequence of events when a bid or offer is amended, withdrawn, or traded by an interested counterparty. Bids or offers submitted by phone, or any other medium, such as instant messaging software, shall be
clocked at the time the bid, offer or trade indication is actually transmitted through the Platts eWindow system. As per Platts methodology, buyers or sellers can withdraw bids/offers at any time when communicating through eWindow, provided no prior interest to transact has been expressed by any potential counterparty. All bids and offers are firm from the moment submitted into Platts eWindow to the moment they are traded, the window period closes or the bid/offer is withdrawn from the system by the trader or a Platts editor.

Platts is an information company and it aims to publish any credible bid or offer reported to it. Platts makes no commitment to publish every bid or offer submitted to it, however. For instance, frivolous bids and offers may not be published.

Terms of trade such as quality, delivery port, timing of delivery/loading and price are fully up to the company submitting the bid or offer.

Platts cannot make any guarantee in advance about how and whether market information received and published but not fully adhering to its defined methodology will be incorporated in its final assessments.

**Atypical bids, offers, trades**

Platts may publish bids, offers and trades with atypical pricing terms, including benchmark bases and timing. Market information with atypical pricing inherently differs in value from the typical and commonly observable information in the market.

Bids and offers which are deemed as atypical, relative to the market may not be fully taken into consideration for the assessment process. In the absence of an associated, liquid derivative instrument atypical pricing bases may be difficult or impossible to evaluate on an outright price equivalent.

Such bids/offers or transactions would be at best indicators of an overall market condition but they would not be seen as exact indicators of market price.

Any unusual condition or request regarding a commodity should be specified at the moment the initial bid or offer is made. Any unusual request that surfaces at the time a counterparty is ready to trade and that impedes the normal flow of a transaction could be seen as an impediment to trade.

Information reported by market participants that may have legal implications, including but not limited to potential libel, will not be published.

Market participants are encouraged to inform Platts when they cannot trade with another typical market participant due to performance, credit or legal issues before the cut off deadlines for initial bids and offers. Platts may ask market participants to provide supporting documentation to ensure the integrity of its assessment process.

**Law**

Contracts using English law are considered standard in the assessment process.

**Embargoed products**

Laws stating that nationals from specific countries may not buy products from embargoed countries may prevent market participants from lawfully executing transactions. A seller therefore may not assume that a buyer has the obligation to buy embargoed materials. Under Platts Market on Close assessment guidelines, commodities supplied from countries or entities that are subject to trading embargoes and sanctions recognized under international law should not be delivered against transactions concluded during the Platts MOC assessment processes. Bids and offers that contain statements surrounding delivery of embargoed materials will be considered by Platts for publication, and if published after review may be subject to normalization in value.

**Late performance**

Platts is aware that physical conditions regarding logistics which are beyond the control of the seller or buyer may result in lateness, quality issues or conditions seen as a deviation from the original wording in the contract, for example late delivery/loading.

These deviations will be seen in the larger context of physical trading, and should not be seen as an indication of Platts condoning lateness.

Platts will review patterns of logistical performance, as adjustments due to late performance and/or quality issues should be extraordinary and not recurring events.

Participants who are intending to sell should not offer when there is a known and distinct possibility that loading/delivery may be delayed. If congestion or delays prevent performance under the contractual terms, the seller should make reasonable and timely efforts to supply from an alternative source, or the seller should engage in other measures to alleviate the buyer’s exposure.

Equally, a buyer should not over-commit and then aggregate nominations in a way that makes it logistically impossible for the seller to perform.

Platts will take appropriate steps to ensure the integrity of its assessments if issues of non-performance should arise.

In summary, performance is paramount and all bids and offers must be firm and transactions should be performable within the contractual parameters.

Platts only recognizes bids, offers and transactions where no party claims a right to unilaterally cancel a transaction. If a transaction becomes difficult the party causing the issue must seek resolution including alternative loadings, qualities, dates or book outs.

**Compensation**

Platts publishes bids, offers and transactions on the basis that participants will fulfil the full value of the physical contract.

A party deemed to have underperformed or not performed under the original contract is expected to compensate the affected party.
In almost all circumstances, the compensation is not, and should not be due to a flat price change, but should include parameters such as backwardation, logistics, and the inconvenience for the buyer in the case of a seller not performing, or contango, logistics and the inconvenience for the seller in the case of a buyer not performing. Compensation should not include consequential costs.

Such adjustments should be fair and in line with market practice, and should be reciprocal in the event that the inverse situation occurs in the future.

Compensation is subject to editorial review to ensure market practices and overall fairness in the transaction have been followed. Platts review may include an analysis of reasonable compensation. Platts views compensation as a part of full performance due under the parameters of a trade reported in the assessment process.

**Force majeure**

Force majeure is part of trading and may be invoked under very special circumstances. Platts editors will monitor the application of it to ensure that force majeure is not invoked frivolously.

**Booking out trades**

Booking out trades done during the Platts Market On Close assessment process is acceptable under exceptional circumstances. A stressed party may request to book out a trade, but its counterparty is under no obligation to accept such request.

In those exceptional cases where both counterparties agree to book out a trade, Platts expects the original spirit of the contract to be fulfilled where the non-performing party offers to buy/sell back the position and compensates the affected party.

In almost all circumstances, the adjustment is not and should not be due to a flat price change, but should be to include parameters such as market structure, logistics and the inconvenience for the buyer or seller expecting a normal transaction. Such adjustments should be fair and in line with market practice, and should be reciprocal in the event that the inverse situation occurs in the future.

Furthermore, circle outs may occur when the original seller sells a parcel that is later sold into a third party that has a sale into the primary seller. Such “circle outs” are considered a normal part of trading as sometimes chains originate and finish at the same point.

Book outs and circle outs are subject to editorial review to ensure market practices and overall fairness in the transaction have been followed. Platts review may include proposals/arrangements to protect the integrity of its assessment process.

**Review of trades**

Platts may track all aspects of performance on trades reported during its MOC assessment process. Platts not only focuses on the performance of the transaction at the time of trade, but also on any significant issues stemming from such trades, including logistics and eventual delivery. Trades executed through the Platts Market On Close assessment process may be reviewed from time to time for performance completion. Platts therefore may request documentary material to determine performance and validity. Such material may include details of quality, location, vessel and laycan nominations. MOC trades may be subject to editorial review to ensure market practices and performance in the transaction have been followed.

A failure to meet Platts guidelines for participation and performance in the MOC may lead to an event driven review. Event driven reviews are designed to help ensure that transactional information and other data inputs used as the basis for Platts price assessments are representative of market value on an ongoing basis.

Post-deal tracking enables Platts to determine the actual performance of the participants in the trade and the validity of their inputs. Platts may publish confirmation of trade performance information.

**Specification**

Platts assessments reflect typically traded qualities of commodities. Specifications are available in individual specifications guides, published on the Platts website [www.platts.com](http://www.platts.com).

**Testing of products**

Traded commodities are subject to standard testing techniques and protocols to determine contractual performance. Platts typically follows the standards already in place in the trading market, although it may monitor these to ensure that the standards are adequate.

**Implied guarantees in specifications**

Bids and offers submitted to Platts that include numerical specifications will be assumed to have a series of zeroes to the right of the decimal point or to the right of the last digit to the right of the decimal point.

As an example, a fuel oil cargo with a maximum guarantee of 0.1 Shell Hot Filtration will be considered as 0.1000 etc. If the specification guarantees are otherwise, the buyer or seller should specify it clearly to avoid potential disputes.

**Merchantability**

Platts only considers in its assessments commodities that are merchantable. Hence, buyers may assume that offers or transactions are for a commodity that is merchantable. Sellers must ensure their offers or transactions are for merchantable commodities.

**PART II: SECURITY AND CONFIDENTIALITY**

Data is stored in a secure network, in accordance with Platts policies and procedures. Platts assessments are produced in accordance with Platts Market on Close assessment methodology. This means that all data for use in Platts assessments may be published by Platts editorial staff while assessing the value of the markets.
PART III: DETERMINING ASSESSMENTS

The following section describes how Platts uses concluded and reported transactions, bids, offers and any other market information it has collected in the manner described in section one, to formulate its price assessments. Additionally, this section describes other information, including the normalization of market data, assumptions and extrapolations that are considered when making a final assessment.

MOC price assessment principles

Through the MOC assessment process, Platts considers market information gathered throughout the normal trading day, and publishes such information throughout the day. Platts analyzes all published information in determining its final published price assessments.

Platts seeks to establish and publish the value of markets that prevail at the close of the assessment process. Platts has aligned the timestamps reflected in its assessments with what typically is a period of high activity in the markets that Platts observes. Platts believes that aligning its price assessments to typical periods of greater market activity and liquidity provides a robust basis upon which to derive an assessment of market value. Timestamps for each assessment are included in the specifications guide for that assessment.

Platts has adopted the MOC methodology in order to provide complete clarity over the precise point in time reflected in its market assessments. Like the quality of a commodity, its delivery location, delivery dates, contract terms, and the volume to be supplied, the time of commercial activity is an important attribute considered in Platts price assessments. The time that a bid or offer is shown to the market, or a transaction concluded, is vitally important in understanding the market value of the respective commodity, in the same way that the quality of the commodity, where it will be delivered and when it will be delivered are important factors. By clearly reflecting value at a defined point in time Platts is able to properly reflect outright and spread value.

The clarity established by providing a well-defined timestamp is also important for understanding the relationships between the markets that Platts assesses. By ensuring that all assessments within a region reflect market value at the same moment in time, spreads that exist between commodities are also able to be fully and properly reflected. For example, comparing the value of a raw material to a processed commodity is possible when both values have been determined at the same moment in time. By contrast, comparing the price of raw material in the morning, to processed material in the afternoon, might deeply impair the relationship between the commodities – particularly when the respective market prices move independently during the intervening period.

By providing clear timestamps for assessments, the Platts MOC process is designed to provide assessments that properly reflect outright and spread value during times of high volatility equally well as in times of modest volatility.

MOC guidelines are designed to avoid distortion of the final price assessments by eliminating inputs that are not fully verifiable, and by disregarding one-offs or unrepeatable transactions, or those that may distort the true market level. Transactions between related parties are, for instance, not considered in the assessment process.

Deals done below the level of prevailing bids or above the level of prevailing offers (i.e., selling through the bid or buying through the offer) will not be reflected in Platts assessments. Platts will only publish expressions of interest to trade with the most competitive, tradeable bid or offer available.

Platts does not specify a minimum amount of transaction data, or a transaction data threshold, for the publication of its price assessments. Physical commodity markets vary in liquidity. Any particular market analyzed on its own will typically demonstrate rising and falling levels of transactional activity through time. Platts is committed to providing an assessment of value for every market that it covers, equally well in times of heightened or reduced liquidity.

Platts seeks to receive market information from as broad a cross section of the market as possible. If a very limited number of market-makers are active in the market, or if a limited number submit data that constitutes a significant proportion of the total data upon which the assessment is based, Platts will continue to seek fully transparent and verifiable data from the market at large and to apply Platts methodology principles of transparency and time sensitivity. Platts considers data for assessment of any market where a single company provides more than half of all available information to be one where such a company provides a significant proportion of data. For consideration in the MOC process such a company's bids or offers must be clearly available for execution by any other potential MOC trading counter party.

Normalization price adjustment techniques

Platts seeks to align the standard specifications for the markets it assesses and the timestamps reflected in its assessments with standard industry practice. However, physical commodity markets are generally heterogeneous in nature. Key attributes often vary from the base standard reflected in Platts assessments and are considered in the specifications guide for that market.

The quality, delivery location and other specific terms of trade may vary in the physical commodity markets assessed by Platts. This means that simple averages of trades may not produce a representative assessment value of a physically heterogeneous market.

Because of the complex nature of the physical markets, market data typically must be aligned with standard definitions to allow for a fully representative final published assessment. Platts aligns data collected through an analysis of the physical markets with
its standard assessment specifications through a process called normalization.

Normalization is an essential price adjustment technique used to align reported market information to the base standard reflected in Platts price assessments.

Platts establishes the level of normalization by surveying markets and observing the economic impact of variance from the base standard. This is done by analyzing freight rates (for locational differences), quality premiums (for quality differences), the movements of all markets through time (for time differences) and other premiums associated with the size of trades and delivery terms.

Normalization for time may be done by analyzing movement in a related market observed through time, and that movement may provide a basis by which to align market value of an earlier reported bid, offer or transaction to market value at the MOC close. The alignment for time is essential to ensure that Platts price assessments reflect the prevailing value of a market at the close of the MOC process.

**Prioritizing data**

Transparency underpins Platts assessment process, just as it does Platts data publishing processes. Platts assessment process considers firm bids, firm offers and arms-length transactions that are transparent and open to sufficient, credible counterparties. Bids, offers or transactions that are not transparent may not be considered in the assessment process; bids above transparent offers or offers below transparent bids are not considered in the assessment process. Platts considers changes to bids or offers when those changes are made transparently and in normal increments.

When determining a final market assessment, Platts gives the greatest priority to fully verifiable and transparent market information. A firm bid or offer that has been published by Platts in accord with its data publishing standards, as outlined in part 1 above, and which still stands open to the marketplace at the close of the assessment process, will establish clear parameters for Platts final published assessments. Platts will typically assess market value between the best firm bid and best firm offer open to the market at the close. This ensures that Platts assessments reflect the transactable value at the close.

Completed, transparent transactions that are fully published by Platts are important in helping establish where trading interest prevails in the market, and may help determine where, in a bid/off er spread, Platts may assess value for publication.

Firm bids and offers that are available to the entire market may take precedence over trades that have been concluded earlier in the assessment process when establishing the value of the market, particularly if bids are available at the close above previously traded levels, or offers are available to the market below previously traded levels. Value is a function of time.

Similarly, firm bids and offers that are available to the entire market take precedence over transactional activity reported to Platts after completion.

The level of each bid or offer must stand firm in the marketplace long enough for any counterparty to transact; otherwise the bid or offer may be deemed non-executable. Platts may not consider bids, offers or transactions that are the result of market gapping. Gapping occurs when a bid and an offer are more than one increment apart and a trade occurs. Platts will analyse and evaluate such trades for their representative value. They may not be fully reflected in the final assessment.

Platts assessment guidelines are designed to avoid any distortion of the final price assessment and so inputs that are not verifiable and “one-off” or unrepeatable transactions may be disregarded from the price assessment process.

Single transactions may be a reflection of market value. However single transactions need to be measured against the broad span of similar transactions. If for instance a buyer decides to trade an offer but is unwilling to buy more material offered at the same level if the seller reoffers it would be determined that the buyer failed the repeatability test. Equally if the seller does not reoffer, the seller fails the repeatability test. As such the transaction may not be fully reflected in the price assessment.

Similarly, Platts may not publish bids or offers that are provided through untested price levels. When transactions are concluded at levels that have not been fully tested by the market because price changes have been non incremental, Platts may determine that actual market value is between the last incremental bid and the transaction at the gapped level.

When no bid, offer or transaction data exists, Platts may consider other verifiable data reported and published through the day, including fully and partially confirmed trades, notional trading values and other market information as provided for publication. Platts may observe direct market activity as well as the effect of movements in related markets through spread differentials or blending and shipping economics, for example.

Platts takes into account representative transactions executed at arms-length in the open market occurring during the trading day, up to the close, and additionally taking into account bid and offer information submitted during this period. Platts editors may require direct verification from the principals to a reported bid, offer or deal when communicated through a third party, including a broker.

**Assessment calculations**

**Units of measurement**

Platts publishes its assessments reflecting the currencies and units of measurement in which the products typically trade.

Commodities are generally internationally traded in US dollars, and Platts assessments are typically published in that currency as a result. Certain markets, such as regional markets, trade...
using local currency. Platts assesses the value of such markets as appropriate in local currency.

Commodities typically trade in volumetric or energy units, and Platts assessments for these markets reflect common practice in each market. The units and unit range considered for each individual Platts assessment of a physical market is described in the specification guide for each commodity.

In certain cases Platts converts its assessments to other currencies or units of measurement to allow for ease of comparison or analysis in regional markets. Such conversions are done using exchange rates published regionally. Conversion factors are described in the specifications guide for each commodity alongside individual assessment codes.

Use of judgment
Judgment guidelines promote consistency and transparency and are systematically applied by Platts. Where judgment is exercised, all information available is critically analyzed and synthesized. The various possibilities are critically analyzed and fully evaluated to reach a judgment.

Platts reporters follow specific methodology when exercising judgment or discretion during their assessment process. Platts editors apply judgment when determining (1) whether information is suitable for publication, (2) when and how to normalize data and (3) where to assess final value. All such judgment is subject to review by Platts editorial management for adherence to the standards published in Platts methodologies.

Judgment may be applied when analyzing transactional data to determine if it meets Platts standards for publication; judgment may also be applied when normalizing values to reflect differences in time, location, and other trading terms when comparing transactional data to the base standard reflected in Platts assessments.

To ensure all assessments are as robust as possible, Platts editorial systems are backed by a strong corporate structure that includes managerial and compliance oversight.

An evaluation process is conducted before publication on every benchmark assessment by a competent peer or manager. The price assessments are reviewed and the exercise of judgment is further discussed and verified during this process. Finally, assessments that are used as benchmarks are supported by assessment rationales. These rationales explain the application of judgment and are published together with the relevant price assessment, offering full transparency to the market.

To ensure the consistent exercise of discretion, Platts ensures that reporters are trained and regularly assessed in their own and each other’s markets. Platts manages and maintains internal training guides for each of the different products assessed which aim to ensure Platts price assessments are produced consistently.

Every assessment of a benchmark, including the use of discretion, is reviewed and approved by a competent peer or manager prior to publication.

Reporters are trained to identify potentially anomalous data. Platts defines anomalous data as any information, including transactions, which is inconsistent with or deviates from our methodology or standard market conventions.

As a publisher owned by S&P Global, independence and impartiality are at the heart of what Platts does. Platts has no financial interest in the price of the products or commodities on which it reports. Platts aim is to reflect where the actual market level is.

Platts focuses primarily on assessing the value of a commodity trading in the spot market. A spot price for a physical commodity is the value at which a standard, repeatable transaction for merchantable material takes place, or could take place, in the open market at arms’ length. Platts spot price assessments reflect this value at precisely the close of the assessment process.

Platts overall objective is to reflect the transactable value of the commodity assessed. In cases where the apparent value of the commodity includes extra optionalties, the intrinsic value of the commodity may be masked. In such cases, Platts reporters may use judgment to normalize bids, offers or transactions with such extraneous elements to the base market standard, or may exclude them altogether. Optionalties that may mask the value of the commodity include but are not limited to loading or delivery options held by the buyer or seller, size option tolerances exercisable by the buyer or seller, or quality specifications.

Outright, differential and spread prices
Platts assesses the outright value of a commodity, as well as differentials when it trades with reference to a benchmark. Platts analyzes all data collected and published by Platts throughout the day. Final assessments are above firm bids, and below firm offers, that stand at the close of the Market on Close assessment process. This is true for outright values and differentials.

Platts physical price assessments use a variety of inputs, including outright price bids/offers, floating price bids/offers, spread price bids/offers (including EFPs, EFSs etc.) and combinations of fixed and floating prices. Platts objective is to assess the prevailing tradable outright price of the commodity at the close of the market assessment period. In the event of an observed conflict between outright values and differentials or spreads, outright values prevail in Platts final published assessments.

Platts establishes the hedgable, outright value of floating and spread price indications by applying them to the observable, prevailing value of underlying relevant derivatives instruments. In the event of conflicts observed between the outright values derived from floating and spread prices with different underlying references, Platts takes into account considerations that include the relative liquidity of each relevant derivatives market, and the typicality of a given spread or floating price, when exercising
judgement around whether to prioritize one particular floating price or spread over another.

Platts may publish bids, offers and trades with atypical pricing terms, including benchmark bases and timing. Market information with atypical pricing inherently differs in value from the typical and commonly observable information in the market.

Bids and offers which are deemed as atypical relative to the market may not be fully taken into consideration for the assessment process. In the absence of an associated, liquid derivative instrument atypical pricing bases may be difficult or impossible to evaluate on an outright price equivalent.

Such bids/offers or transactions would be at best indicators of an overall market condition but they would not be seen as exact indicators of market price.

Timing
Platts produces time-sensitive assessments that reflect the value of the markets it covers precisely at the close of the price assessment process in each region. By providing clear timestamps for every region the Platts assessment process is designed to provide price assessments that properly reflect outright and spread value.

As an example, gasoline has a value, naphtha has a value and the gasoline versus naphtha spread has a value, and all three match when measured at the same time. By contrast, a system of averages can lead to distortions in the gasoline versus naphtha spread if the distribution of deals done for gasoline and naphtha differs over the averaging period. Thus if gasoline trades actively at the beginning of the assessment period and naphtha trades actively at the end of the assessment period in a rising market, the assessed spread value resulting from an averaging process will not be reflective of actual market value. This distortion can arise even if the value of spread trades in their own right has remained constant. The MOC approach drastically reduces the possibility of such distortions.

Assessments reflect typical loading and delivery schedules for each market assessed. The standard loading and delivery periods are included in the individual specifications guide for each commodity.

Market structure, such as backwardation and contango, is also factored into the Platts assessment process. If a company offers a parcel loading 15 days forward, the offer may provide market information for the Platts assessment for parcels loading 15 days forward. Platts would still need to assess days 16 through 30 (in a 15-30 day market) and publish an assessment that reflects market value 15-30 days forward ahead of the day of assessment.

Market structure
Platts is very stringent in following timings for loading or delivery due to the variability in market value across time. This variability increases as the market structure, backwardation or contango, in the markets increases.

Platts factors in the backwardation/contango and reflects its impact on the published assessment. The assessment reflects the value of the commodity normalized to the center of the loading/delivery window. In a contango market, the excess of prompt material causes the front period to be significantly lower in value than material available at the end of the window. In a backwardated market the tightness of supply causes the prompter material to be at a higher price than material available at the end of the window.

Platts methodology eliminates any arbitrary movement in assessments caused simply by the different loading/delivery ranges traded. By normalizing prices to the mid-point of a clearly defined date range, the consistency of prices is maintained. The day-to-day changes in the price assessments therefore reflect an actual price move in the value of the commodity, rather than an artificial change because a cargo happens to be loading/delivering in the front period of the window rather than the back period, or vice versa.

The date ranges reflected by Platts reflect the prevailing trading practices in the region. By not taking very prompt days into consideration, transactions reflecting distressed prices are excluded. The definition of this period varies according to specific markets.

Determination of backwardation or contango
In calculating market structure, the prices of tradable instruments, including derivatives such as futures and swaps, may be used.

Typical calculations include a determination made for the difference in price over a month; a granular value is then calculated from this for each day.

Outright and floating price information
The three main factors used in the commodities markets for price determination are:

- Outright price
- Differentials
- Derivatives

These three factors — outright price, premiums and derivatives — converge in a spot price. Platts may use all three in its assessments.

Outright price: The ultimate question in the mind of an end-user, producer, trader or broker is price. Outright prices are the simple statement of a price at which something can be bought or sold, with the entire value stated — for example, an offer of a cargo of iron ore at $100/mt. Price in turn determines expense, processing margin, profit, loss, etc. The spot market trades actively on an outright price basis and a floating price basis. Platts takes both into account in its assessments. Platts will publish activity on both a fixed and floating basis.
Differentials: Many transactions are carried out in relation to a benchmark. In this case a differential, also known as a premium/discount is generated. Differentials can arise if the quality, volumes or loading times for a given transaction differ from the benchmark. In addition, floating price transactions are done in relation to assessments that will be published in the future – for example, a bid for a cargo at $10/mt above the Platts assessment of that same commodity, as published immediately before, during and after delivery of the cargo. Premiums usually rise when the market’s backwardation steepens, and the steeper the curve, the greater the premium. In a contango situation, premiums have a tendency to turn into discounts.

Derivatives: Derivatives are a major determinant in price; they trade frequently and throughout the day. These markets are very reactive and may provide market participants with timely information on market conditions. They can react to arbitrage conditions or movements in overseas markets as well as local conditions. Derivatives may allow companies to adapt their price exposure because they enable market participants to transform floating prices to fixed or fixed to floating.

PART IV: PLATTS EDITORIAL STANDARDS

All Platts employees must adhere to the S&P Global Code of Business Ethics (COBE), which has to be signed annually. The COBE reflects S&P Global’s commitment to integrity, honesty and acting in good faith in all its dealings.

In addition, Platts requires that all employees attest annually that they do not have any personal relationships or personal financial interests that may influence or be perceived to influence or interfere with their ability to perform their jobs in an objective, impartial and effective manner.

Market reporters and editors are mandated to ensure adherence to published methodologies as well as internal standards that require accurate records are kept in order to document their work.

Platts has a Compliance function that is independent of the editorial group. The Compliance team is responsible for ensuring the quality and adherence to Platts policies, standards, processes and procedures. The Compliance team conduct regular assessments of editorial operations, including checks for adherence to published methodologies.

S&P Global Platts appoints an independent, external auditor with appropriate experience and capability to review and report on its adherence to this stated methodology. The annual report is published online at https://www.platts.com/regulatory-engagement.

PART VI: REQUESTS FOR CLARIFICATIONS OF DATA AND COMPLAINTS

Platts strives to provide critical information of the highest standards, to facilitate greater transparency and efficiency in physical commodity markets.

Platts customers raise questions about our methodologies and the approach we take in our price assessments, proposed methodology changes and other editorial decisions in relation to our price assessments. These interactions are strongly valued by Platts and we encourage dialog concerning any questions a customer or market stakeholder may have.

However, Platts recognizes that occasionally customers may not be satisfied with responses received or the services provided by Platts and wish to escalate matters. Full information about how to contact Platts to request clarification around an assessment, or make a complaint, is available on our website, at: http://www.platts.com/ContactUs/Complaints.

PART V: CORRECTIONS

Platts is committed to promptly correcting any material errors. When corrections are made, they are limited to corrections to data that was available when the assessment was calculated.
PART VII: DEFINITIONS OF THE TRADING LOCATIONS FOR WHICH PLATTS PUBLISHES INDEXES OR ASSESSMENTS

The following Iron Ore specifications guide contains the primary specifications and methodologies for Platts Iron Ore assessments throughout the world. The various components of this guide are designed to give Platts subscribers as much information as possible about a wide range of methodology and specification issues.

This methodology is current at the time of publication. Platts may issue further updates and enhancements to this methodology and will announce these to subscribers through its usual publications of record. Such updates will be included in the next version of the methodology. Platts editorial staff and managers will usually be ready to provide guidance when assessment issues require clarification.

These are the timestamps used for Platts iron ore assessments. Data reported at or after these timestamps is not considered in the assessment process.

Asia: 5.30pm Singapore

Atlantic: 4.30pm London

IRON ORE ASSESSMENTS

Assessment

<table>
<thead>
<tr>
<th>Code</th>
<th>Mavg</th>
<th>Wavg</th>
<th>Rolling Mavg</th>
<th>Quality</th>
<th>Quantity</th>
<th>Dimensions</th>
<th>Location</th>
<th>Timing</th>
<th>Payment terms</th>
<th>UOM</th>
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<tbody>
<tr>
<td>IODEX 62% FE CFR China</td>
<td>100820</td>
<td>100820</td>
<td>100820</td>
<td>100820</td>
<td>62% Fe, 8% moisture, 4% silica, 2.25% alumina, 0.09% phosphorus, 0.02% sulfur</td>
<td>min. 50,000 mt Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight $/dmt</td>
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<tr>
<td>TSI Iron Ore Fines 62% Fe CFR China</td>
<td>T581021</td>
<td>T5MA083</td>
<td>T5MB083</td>
<td>62% Fe, 8% moisture, 4% silica, 2.25% alumina, 0.09% phosphorus, 0.02% sulfur</td>
<td>min. 50,000 mt Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight $/dmt</td>
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<tr>
<td>IO Fines 65% FE CFR China</td>
<td>IOPRMN00</td>
<td>IOPRM03</td>
<td>65% Fe, 8.5% moisture, 3.5% silica, 1% alumina, 0.075% phosphorus</td>
<td>min. 50,000 mt Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight $/dmt</td>
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<tr>
<td>IO Fines FE 58% Low Alumina CFR China</td>
<td>IONCS99</td>
<td>IONCS83</td>
<td>58% Fe, 9% moisture, 10% loss on ignition, 5.5% silica, 1.5% alumina, 0.05% phosphorus, 0.02% sulfur</td>
<td>min. 50,000 mt Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight $/dmt</td>
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<td>TSI Iron Ore Fines 58% Fe 1.5% Al China Imports CFR Qingdao Port</td>
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<td>T5MB083</td>
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<td>min. 50,000 mt Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight $/dmt</td>
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<tr>
<td>IO Fines FE 58% CFR China</td>
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<td>IODEE93</td>
<td>58% Fe, 10% moisture, 5% silica, 4% alumina, 0.05% phosphorus</td>
<td>min. 50,000 mt Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight $/dmt</td>
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<td>IO Spot Lump Premium 62.5% CFR China</td>
<td>IOLP980</td>
<td>IOLP003</td>
<td>IOLP683</td>
<td>62.5% Fe, 4% moisture, 3.5% silica, 1.5% alumina, 0.075% phosphorus, 0.02% sulfur</td>
<td>min. 50,000 mt Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight $/dmt</td>
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<tr>
<td>IO Spot Blast Furnace Pellet Premium 65% CFR China (Weekly)</td>
<td>IOBFL04</td>
<td>65% Fe blast furnace pellet, CFR China: 0.35% alumina, 5% silica, 0.02% phosphorus, 0.003% sulfur, 250 Cold Crushing Strength (CCS)</td>
<td>min. 35,000 mt Maximum sizing of 2.5% under 5 mm</td>
<td>CFR Qingdao basis Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight $/dmt</td>
<td></td>
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<tr>
<td>IOPEX 62% Fe FDT East China</td>
<td>IOPBN99</td>
<td>IOPBN03</td>
<td>IOPBN06</td>
<td>62% Fe, 8% moisture, 4% silica, 2.25% alumina, 0.09% phosphorus, 0.02% sulfur</td>
<td>min. 5,000 mt Granular size of up to 10 mm for up to 90% of lot</td>
<td>FOT Rizhao, Qingdao</td>
<td>TT/CAD Yuan/wmt</td>
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<tr>
<td>IOPEX 62% Fe East China (import parity USD-equivalent)</td>
<td>IOPDC90</td>
<td>IOPDC83</td>
<td>62% Fe, 8% moisture, 4% silica, 2.25% alumina, 0.09% phosphorus, 0.02% sulfur</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$/dmt</td>
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<td>IOPEX 62% Fe FDT North China</td>
<td>IOPBL99</td>
<td>IOPBL03</td>
<td>IOPBN96</td>
<td>62% Fe, 8% moisture, 4% silica, 2.25% alumina, 0.09% phosphorus, 0.02% sulfur</td>
<td>min. 5,000 mt Granular size of up to 10 mm for up to 90% of lot</td>
<td>FOT Caofeidian, Jingtang</td>
<td>TT/CAD Yuan/wmt</td>
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<tr>
<td>IOPEX 62% Fe North China (import parity USD-equivalent)</td>
<td>IOPCN90</td>
<td>IOPCN83</td>
<td>62% Fe, 8% moisture, 4% silica, 2.25% alumina, 0.09% phosphorus, 0.02% sulfur</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$/dmt</td>
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<tr>
<td>Iron ore Alumina differential per 1% with 1-2.5% $/DMT</td>
<td>10ADF10</td>
<td>1% alumina within 1-2.5% range for fines with 60-63.5% Fe</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$/dmt</td>
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<tr>
<td>Iron ore Alumina Differential per 1% with 2.5-4% $/DMT</td>
<td>10ALE90</td>
<td>1% alumina within 2.5-4% range for fines with 60-63.5% Fe</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$/dmt</td>
<td></td>
<td></td>
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**IRON ORE ASSESSMENTS**

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Code</th>
<th>Mavg</th>
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<th>Rolling Mavg</th>
<th>Quality</th>
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<th>Location</th>
<th>Timing</th>
<th>Payment terms</th>
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<tr>
<td>Iron Ore Alumina Differential per 1% within (5% (55-60% Fe Fines)</td>
<td>TSI1A#00</td>
<td>TSI1A#03</td>
<td>1% alumina below 5% for fines with 55-60% Fe</td>
<td>NA*</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<td>$/dmt</td>
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<tr>
<td>Mid Range 1% Fe Diff 60-63.5 Fe $/DMt</td>
<td>TIOGD#00</td>
<td>TIOGD#03</td>
<td>1% Fe within 60-63.5% range</td>
<td>NA*</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$/dmt</td>
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<tr>
<td>Iron Ore Fe Differential per 1% Fe within 55-60% Fe Fines</td>
<td>TSI1D#00</td>
<td>TSI1D#03</td>
<td>1% Fe within 55-60% range</td>
<td>NA*</td>
<td>NA</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$/dmt</td>
<td></td>
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<tr>
<td>Iron Ore Silica Differential per 1% within 55-60% Fe Fines</td>
<td>TSI1A#00</td>
<td>TSI1A#03</td>
<td>1% silica for fines with 55-60% Fe</td>
<td>NA*</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$/dmt</td>
<td></td>
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<tr>
<td>Iron ore Silica Differential per 1% with &lt;4.5% $/DMT</td>
<td>IODLF#00</td>
<td>IODLF#03</td>
<td>1% silica below 4.5% for fines with 60-63.5% Fe</td>
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<td>NA</td>
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<td>NA</td>
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<td>NA</td>
<td>$/dmt</td>
<td></td>
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<tr>
<td>Iron ore Silica differential per 1% with 4.5-6.5% $/DMT</td>
<td>IOPPS#10</td>
<td>IOPPS#20</td>
<td>1% silica within 4.5-6.5% range for fines with 60-63.5% Fe</td>
<td>NA*</td>
<td>NA</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$/dmt</td>
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<tr>
<td>Iron ore Phosphorus differential per 0.01% with 0.09-0.12% $/DMT</td>
<td>IOPPO#00</td>
<td>0.01% phosphorus within 0.08-0.12% range for fines with 60-63.5% Fe</td>
<td>NA*</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$/dmt</td>
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<tr>
<td>IO Concentrate 66% Fe DDP Tangshan VAT-inclusive Wkly</td>
<td>SB01159</td>
<td>SBMA#03</td>
<td>66% Fe, 8% moisture, 5% silica, 0.75% alumina, max 0.03% phosphorus, max 0.05% sulfur</td>
<td>min. 1,000 mt</td>
<td>Granular size of more than 0.074 mm for at least 70% of cargo</td>
<td>Delivered to mill in Tangshan, Hebei</td>
<td>Delivery within 2 weeks from publication date</td>
<td>Cash at sight</td>
<td>Yuan/dmt (incl. VAT)</td>
<td></td>
<td></td>
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<tr>
<td>Atlantic Basin Iron Ore Pellets Est Mthly ChPr Brazil Exp FOB</td>
<td>SB01095</td>
<td>65% Fe blast furnace pellet: Silica 3%; Alumina 0.5%; CCS 275 L TD +6.3 mm, 80; Sizing over 9 mm is &gt;94%; Sizing below 6.3 mm &lt;2.5%.</td>
<td>not specified</td>
<td>not specified</td>
<td>FOB Atlantic, normalized to Brazil</td>
<td>Provisional price for loadings in month of publication</td>
<td>not specified</td>
<td>$/dmt</td>
<td></td>
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<tr>
<td>Atlantic Iron ore blast furnace pellet CP premium</td>
<td>IOBP#00</td>
<td>65% Fe blast furnace pellet: Silica 3%; Alumina 0.5%; CCS 275 LTD +6.3 mm, 80; Sizing over 9 mm is &gt;94%; Sizing below 6.3 mm &lt;2.5%.</td>
<td>not specified</td>
<td>not specified</td>
<td>FOB Atlantic, normalized to Brazil</td>
<td>Provisional price for loadings in month of publication</td>
<td>not specified</td>
<td>$/dmt</td>
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<td></td>
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</tr>
<tr>
<td>Iron Ore Direct Reduction Pellet Premium</td>
<td>IODRP#00</td>
<td>67.5% Fe DR pellet, 1.5% Silica, 300 CCS, and sizing over 9 mm &gt;94%.</td>
<td>not specified</td>
<td>not specified</td>
<td>NA</td>
<td>Provisional price for loadings in month of publication</td>
<td>not specified</td>
<td>$/dmt</td>
<td></td>
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</table>

*This is a differential of a particular impurity within a cargo.*

**IRON ORE PHYSICAL DIFFERENTIAL ASSESSMENTS**

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Code</th>
<th>Mavg</th>
<th>Wavg</th>
<th>Quality</th>
<th>Quantity</th>
<th>Dimensions</th>
<th>Location</th>
<th>Timing</th>
<th>Payment terms</th>
<th>UOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Ore 58% Fe Low Alumina Differential to IODEX</td>
<td>IODLA#00</td>
<td>IODLA#03</td>
<td>Differential of the code IONC580 to IODB200</td>
<td>min. 50,000 mt</td>
<td>NA</td>
<td>NA</td>
<td>CFQ Qingdao basis</td>
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<td>$/dmt</td>
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<tr>
<td>Iron Ore 58% Fe Differential to IODEX</td>
<td>IODLC#00</td>
<td>IODLC#03</td>
<td>Differential of the code IOFE580 to IODB200</td>
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<td>NA</td>
<td>CFQ Qingdao basis</td>
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<tr>
<td>Iron Ore 65% Fe Differential to IODEX</td>
<td>IODLB#00</td>
<td>IODLB#03</td>
<td>Differential of the code IOPR650 to IODB200</td>
<td>min. 50,000 mt</td>
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<td>CFQ Qingdao basis</td>
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<td>$/dmt</td>
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</table>

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**IRON ORE SEABORNE BRAND ASSESSMENTS**

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<tr>
<th>Assessment</th>
<th>CODE</th>
<th>Mavg</th>
<th>QUALITY</th>
<th>QUANTITY</th>
<th>DIMENSIONS</th>
<th>LOCATION</th>
<th>TIMING</th>
<th>PAYMENT TERMS</th>
<th>UOM</th>
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</thead>
<tbody>
<tr>
<td>Pilbara Blend Fines CFR Qingdao</td>
<td>IOPBQ00</td>
<td></td>
<td>as per typical specifications</td>
<td>min. 50,000 mt</td>
<td>Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis</td>
<td>Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight</td>
<td>$/dmt</td>
</tr>
<tr>
<td>Pilbara Blend Fines CFR Qingdao (Floating)</td>
<td>IOPBSN0</td>
<td>IOPBS03</td>
<td>as per typical specifications</td>
<td>min. 50,000 mt</td>
<td>Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis</td>
<td>Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight</td>
<td>$/dmt</td>
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<tr>
<td>Brazilian Blend Fines CFR Qingdao</td>
<td>IOBBA00</td>
<td>IOBBA03</td>
<td>as per typical specifications</td>
<td>min. 50,000 mt</td>
<td>Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis</td>
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<td>L/C at sight</td>
<td>$/dmt</td>
</tr>
<tr>
<td>Brazilian Blend Fines CFR Qingdao (Floating)</td>
<td>IOBBBN0</td>
<td>IOBBB03</td>
<td>as per typical specifications</td>
<td>min. 50,000 mt</td>
<td>Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis</td>
<td>Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight</td>
<td>$/dmt</td>
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<tr>
<td>Newman High Grade Fines CFR Qingdao</td>
<td>IONHA00</td>
<td>IONHA03</td>
<td>as per typical specifications</td>
<td>min. 50,000 mt</td>
<td>Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis</td>
<td>Delivery within 2-8 weeks from publication date</td>
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<td>IONHB03</td>
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<td>CFR Qingdao basis</td>
<td>Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight</td>
<td>$/dmt</td>
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<tr>
<td>Mining Area C Fines CFR Qingdao</td>
<td>IOMAA00</td>
<td>IOMAA03</td>
<td>as per typical specifications</td>
<td>min. 50,000 mt</td>
<td>Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis</td>
<td>Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight</td>
<td>$/dmt</td>
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<tr>
<td>Mining Area C Fines CFR Qingdao (Floating)</td>
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<td>IOMAB03</td>
<td>as per typical specifications</td>
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<td>CFR Qingdao basis</td>
<td>Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight</td>
<td>$/dmt</td>
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<tr>
<td>Jimblebar Fines CFR Qingdao</td>
<td>IOJBA00</td>
<td>IOJBA03</td>
<td>as per typical specifications</td>
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<td>Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis</td>
<td>Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight</td>
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<tr>
<td>Jimblebar Fines CFR Qingdao (Floating)</td>
<td>IOJBB00</td>
<td>IOJBB03</td>
<td>as per typical specifications</td>
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<td>Granular size of up to 10 mm for up to 90% of cargo</td>
<td>CFR Qingdao basis</td>
<td>Delivery within 2-8 weeks from publication date</td>
<td>L/C at sight</td>
<td>$/dmt</td>
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</table>

**Iron Ore Assessments**

**IOMGD00 1% Fe Differential (Range 60-63.5% Fe)**

Platts 1% Fe differential is reflective of the value of 1% Fe in fines within the 60-63.5% Fe range. Its value is determined by comparing spot transactions of fines within the 60-63.5% Fe range. This per Fe value is assessed daily at Asian market close, and expressed in USD per dry metric ton.

**TSIAD00 1% Fe Differential (Range 55-60% Fe)**

Platts 1% Fe differential is reflective of the value of 1% Fe in fines containing above 55% and up to 60% Fe. Its value is determined by comparing spot transactions of fines within the 55-60% Fe range. This per Fe value is assessed daily at Asian market close, and expressed in USD per dry metric ton.

**Per 1% Alumina and Silica Differentials, per 0.01% Phosphorus Differential (Range 60-63.5% Fe)**

- **IOADF10** Iron Ore Alumina Differential per 1% within 1-2.5% range
- **IOALE00** Iron Ore Alumina Differential per 1% within 2.5-4% range
- **IOALF00** Iron Ore Silica Differential per 1% with <4.5%
- **IOPPS10** Iron Ore Silica Differential per 1% within 4.5-6.5% range
- **IOPPS20** Iron Ore Silica Differential per 1% within 6.5-9% range
- **IOPPO0** Iron Ore Phosphorus Differential per 0.01% within 0.09-0.12% range

Platts alumina and silica differentials are reflective of the 1% value within specific bands of alumina and silica as stated above, for which they are deemed to be linear. These values are determined by comparing the alumina and silica values of spot trades of 60-63.5% Fe cargoes. Values are also determined from data gathered from industry sources buying or selling 60-63.5% Fe cargoes with differing alumina and silica impurities. Additionally any flat price discounts or premiums to IODEX or 60-63.5% Fe trades can also be used to establish these values.

The Platts phosphorus differential is reflective of the incremental value of 0.01% within the 0.09-0.12% range contained in a specification of iron ore fines. The value is determined from by comparing phosphorus values reflected in spot trades of 60-63.5% Fe cargoes. The assessment is determined from data gathered from market sources buying or selling iron ore fines 60-63.5% Fe cargoes with differing phosphorus content, as well as an analysis of flat price...
discounts or premiums to IODEX or 60-63.5% Fe trades.

Per 1% Alumina and Silica Differentials (Range 55-60% Fe)

TSIAI00 Iron Ore Silica Differential per 1% within 55-60% Fe Fines
TSIAF00 Iron Ore Alumina Differential per 1% within <5% (55-60% Fe Fines)

The low grade alumina and silica differentials are reflective of 1% value in fines containing above 55% and up to 60% Fe. These values are determined by comparing the alumina and silica values of spot trades of 55-60% Fe cargoes. Values are also determined from data gathered from industry sources buying or selling 55-60% Fe cargoes with differing alumina and silica impurities. Additionally any flat price discounts or premiums to IODEX or 60-63.5% Fe trades can also be used to establish these values.

IODEX 62% Fe CFR China & TSI Iron Ore Fines 62% Fe CFR China

Platts considers the following iron ore medium grade fines brands for these assessments: Pilbara Blend Fines, Newman High Grade Fines, Brazilian Blend Fines and Mining Area C Fines. Platts considers the typical specifications of these brands when normalizing back to the assessment specification, unless notified of specific cargo quantity. Platts continuously reviews whether brands cease to be or become sufficiently fungible to be considered in the IODEX & TSI-62% assessment processes. Platts considers full & part cargoes of the above medium grade fines brands, and also combined cargoes comprising of two different fines grades.

Platts MOC assessment process reflects common market practice. Platts has observed that brands of iron ore are typically sold against the standard spot contract terms of the mining company producing and marketing the brand or against base contracts that do not differ materially from the miner’s spot contract terms. Platts may publish bids, offers and trades that carry different terms and conditions, but may normalize these when considered in the final assessment.

More broadly, Platts publishes transactions, bids and offers in its MOC assessment process that reflect the standard trading terms agreed between different market participants. For instance, if companies commonly trade outside of the MOC using a Letter-of-Indemnity, Platts would consider it reasonable for those two companies to transact using an LOI for trades concluded in the MOC.

Platts observes that trading against an LOI is a typical market practice in iron ore. Platts does not reflect cargoes offered against original bill of lading (OBL) discharge in its MOC assessment process.

Platts reflects bids, offers and trades reported in the MOC assessment process that do not differ materially from the miner’s spot contract terms. Platts continues to track terms used in iron ore trade and may update this list according to market developments. In all circumstances, Platts reverts back to reflecting common market practice.

For reported transactions, when trades are concluded at levels that have not been fully tested by the market because price changes have been non incremental, Platts may determine that actual market value is somewhere between the last incremental bid or offer and the transaction at the gapped level.

Normalization for quality

Platts defines base specifications for which deals, bids and offers are normalized to. Quality normalization involves adjusting for differences in chemical, physical and metallurgical properties, with the latter two especially critical in lump and pellet valuation.

In normalizing for chemical quality, the most important factors Platts reflects are iron, alumina, silica and phosphorus. Platts normalizes for differences in iron content by adjusting on an iron unit basis, when the alumina and silica contents of an observed product approximate those underlying the Platts assessments. For example, a cargo with specifications of 61%-Fe, 1.9% alumina and 2.7% silica will be normalized by dividing its price (transacted, bid or offered) by 61 and then multiplying the result by 62 for normalization to IODEX specifications, and in accordance with industry practice. Additional adjustments will be made for alumina and silica to reflect the underlying Platts assessments.

Ores of grades below 60% Fe and above 63.5% Fe may not be used directly in the formation of the 62% Fe IODEX due to a lack of linearity in the price escalation/de-escalation on a per Fe basis outside this range. They may however be referred to as an indicator of general price direction. Ores of below 60% Fe may be considered in the 58% Fe assessments, while ores with above 63.5% Fe may be considered in the 65% assessment.

Other impurities like sulfur, alkalis and loss on ignition (LOI) are also considered in the normalization process where known to have significant impact on value.

Outright, differential and spread prices

Platts normalizes outright values of iron ore as well as differentials when they trade with reference to a benchmark.

Platts physical price assessments use a variety of inputs, including outright price bids/offers/trades, floating price bids/offers/trades and spread price bids/offers/trades. Platts’ objective is to assess the prevailing tradable outright price of iron ore at the close of the market assessment period. In the event of an observed conflict between outright values and
differentials or spreads, outright values prevail in Platts final published assessments.

Platts establishes the hedgeable, outright value of floating and spread price indications by applying them to the observable, prevailing value of underlying relevant derivatives instruments.

**Timing and time gradient**

The delivery time of cargoes can also impact its price. Platts normalize trades, bids and offers occurring between 2 to 8 weeks (14-56 days) forward from the date of publication, so that one-off or distressed trades where either the buyer or seller has left it too late to transact within acceptable lead times that can typically be met by counterparties in the normal course of business.

Platts assess to the middle of the 2 to 8 week delivery period. Backwardation and contango is factored into all assessments. The assessments thus reflect the value after taking into consideration the difference in prices prevailing along the time curve assessed by Platts.

The variability in price increases as the backwardation or contango in the markets increase in gradient. By normalizing prices to the mid-point of a clearly defined date range, the consistency of prices is maintained. The day-to-day changes in the price assessments therefore reflect an actual price move in the value of the commodity, rather than an artificial change because a cargo happens to be loading/delivering in the front end of the window rather than the back end, or vice versa.

In a contango market, the excess of prompt material causes the front end to be significantly cheaper than material available at the end of the window. In a backwardated market the tightness of supply causes the prompter volumes to be at a higher price than iron ore available at the end of the window.

Platts methodology eliminates any arbitrary movement in assessments caused simply by the different loading/delivery ranges traded.

Platts assessments reflect fair market value and therefore take into consideration backwardation and contango. Where indications are on differing date ranges, a calculation is made to determine the value the market is assigning for the difference between loading dates. In calculating this time gradient, the prices of tradable instruments, including derivatives such as futures and swaps, may be used. Typical calculations include a determination made for the difference in price over a month; a granular value is then calculated from this for each day.

Platts assessments seek to be inclusive of the various types and time frames of trade within markets. Any transaction that is negotiated as part of a framework of longer-term contractual arrangements (term deals) will be excluded from the assessment process.

**IOCLP00 IO Spot Lump Premium 62.5% CFR CHINA**

The daily assessment is of the premium lump commands over the price of fines as defined by the Platts 62%-Fe Iron Ore Index specification. Market information obtained on a flat price basis can be converted to a premium on a dmt basis.

The lump premium is assessed as a premium over the IODEX swap month which lies at the middle of the Platts delivery window, or 35 days forward from the date of publication, also known as the Mid-Window Month.

For all lump premium indications over a base month other than the Mid-Window Month, Platts normalizes these to the Mid-Window Month using the iron ore fines derivatives forward curve.

This is to ensure that the underlying structure of the iron ore fines base is accounted for when assessing the lump premium, and to compare all lump premium indications against the same base.

Metallurgical properties have not been specified in line with current spot trading convention, as tests are not typically conducted on each cargo, whether at load or discharge port. Market participants evaluate the premium each brand commands, incorporating chemical, physical and metallurgical properties, in large part based on prior knowledge of these properties and experience using the products.

**IOBFC04 Spot Blast Furnace Iron Ore Pellet Premium 65% CFR CHINA (Weekly)**

The assessment is of the premium that blast furnace pellet commands over the price of fines as defined by the Platts 62%-Fe Iron Ore Index, and after adjustment to 65%-Fe basis. This assessment is published every Wednesday or the nearest previous business day. Market information obtained on a flat price basis can be converted to a premium on a dmt basis.

Metallurgical properties have not been specified in line with current spot trading convention, as tests are not typically conducted on each cargo, whether at load or discharge port. Market participants evaluate the premium each brand commands, incorporating chemical, physical and metallurgical properties, in large part based on prior knowledge of these properties and experience using the products.

The spot blast furnace pellet premium assessment will reference 65%-Fe, Alumina 0.35%, Silica 5%, 0.02% Phosphorus, 0.003% Sulfur, 250 Cold Crushing Strength (CCS), and a maximum sizing of 2.5% under 5 mm.

**IOPEX**

On August 1, 2017 Platts launched its iron ore port stocks indices, or IOPEX. These include two regional iron ore fines assessments as well as Pilbara Blend Fines and Newman Fines assessments in both regions. Platts also launched import parity port stocks assessments.
IOPBN00 IOPEX 62% Fe FOT East China RMB/WMT: this daily assessment in Yuan/wet mt reflects trade activity in Rizhao & Qingdao. The most competitive values observed in either port reflected form the basis of the assessment.

IOPBG00 Pilbara Blend Fines FOT East China: this daily assessment reflects the tradeable value of this brand in Rizhao & Qingdao.

IOPBH00 Newman High Grade Fines FOT East China: this daily assessment reflects the tradeable value of this brand in Rizhao & Qingdao.

IOPDC00 IOPEX 62% Fe FOT E. China USD/DMT: this daily assessment reflects the tradeable value of medium grade fines on an import parity basis, accounting for port charges and VAT. This assessment is a USD/DMT equivalent of the N. China IOPEX RMB/DMT assessment.

IOPBL00 IOPEX 62% Fe FOT North China RMB/WMT: this daily assessment in Yuan/wet mt reflects trade activity in Caofeidian & Jingtang. The most competitive values observed in either port reflected form the basis of the assessment.

IOPBF00 Newman High Grade Fines FOT North China: this daily assessment reflects the tradeable value of this brand in Caofeidian & Jingtang.

IOPCC00 IOPEX 62% Fe FOT N. China USD/DMT: this daily assessment reflects the tradeable value of medium grade fines on an import parity basis, accounting for port charges and VAT. This assessment is a USD/DMT equivalent of the N. China IOPEX RMB/DMT assessment.

Iron Ore Seaborne Brand Assessments

Platts launched on September 3, 2018 daily seaborne iron ore brand assessments on a fixed and floating price basis. Platts assesses these brands timestamped to 5.30pm, aligning them to the assessments of IODEX and TSI-62%.

Platts assesses these brands against their typical specifications, using information collected throughout the day from active market participants across the supply chain. The floating price brand assessments are calculated from the fixed price assessments. The value published for brand assessments on a floating price basis are derived from the front-month swap assessment (TSIPM01).

EMEA

SB01095 Atlantic Basin Iron Ore Pellets FOB Basis (cent/dmtu) (monthly): This monthly calculated value reflects a provisional contract settlement price for iron ore blast furnace pellets typically sold in term contracts, to steel mills primarily in Europe. It is published on the first business day of each month and then throughout that month in Steel Markets Daily and accessible on the SBB price analyzer. The calculated formula for the assessment takes the monthly average netback to Brazil (IONSBG03) of the previous month, as its pricing basis. The quality is adjusted to 66% Fe, as a basis for pellet pricing, by adding (x3) 1% Fe differential monthly average (IONMD03) also for the previous month. Additionally each month Platts editors assess a pellet premium (IOBFP00) in US$, reflecting an additional charge, over the quality adjusted iron ore fines. This is part of the total calculated value. A cent/ferrous unit price is calculated by dividing the sum value by 65.

The Atlantic Basin Iron Ore Pellets assessment will reference 65% Fe; Silica 3%; Alumina 0.5%; CCS 275; LTD +6.3 mm, 80; Sizing over 9 mm is >94%; Sizing below 6.3 mm <2.5%.

IOBFP00 Atlantic Basin Iron Ore pellet premium ($US/dry mt) (monthly): This is a monthly assessed value reflecting a provisional pellet premium contract settlement price for iron ore blast furnace pellets typically sold in term contracts, to steel mills primarily in Europe. This value reflects an additional charge, over the quality adjusted iron ore fines.

IODRP00 Iron Ore Direct Reduction Pellet Premium ($US/dry mt) (monthly): A monthly assessment reflecting the value of ‘premium’ used in formulating a provisional contract settlement price for iron ore direct reduction pellets typically sold in term contracts, to steel mills primarily in Middle East & North Africa, and also in the Americas. This value reflects an additional charge for a high quality 67.5% Fe DR grade pellet, net of any further quality adjustments and including the 2.5% Fe over a 65% Fe fines basis. It is published on the first business day of each month and then throughout that month in Steel Markets Daily.

The DR pellet premium specifications and parameters are as follows:

67.5% Fe, 1.5% Silica, 300 CCS, and sizing over 9 mm >94%.
## Iron Ore Paper Swaps

Platts publishes daily assessments for monthly, quarterly and next calendar year CFR North China iron ore swaps. These financial instruments are traded fixed price (e.g. $80/mt) or in intermonth spreads. Platts also publishes assessments for the next three calendar quarterly swap. Monthly assessments will be rolled on the first day of the month. For example, during October 2009 the M1 iron ore swap will be November 2009, M2 will be December 2009, and the quarterly swap will be Q1 2010. On November 1 the M1 iron ore swaps will roll to December, M2 will roll to January, and the quarterly swap will still be Q1 2010. For the current month swap, the value is assessed as long as there is sufficient liquidity on the relevant strip to do so.

### Timing:
Swaps assessments reflect a market-on-close value at 17:30hrs Singapore time. The assessments reflect the tradable level at this time. Swaps bids/offers and trades are reported in real-time throughout the day on Platts' electronic information service, Platts Metals Alert (PMA) and a summary of trades published after market close in Platts Steel Markets Daily. Full calendar month swaps for the month-ahead and the subsequent

### Iron Ore Paper Swaps

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<tr>
<th>Assessment</th>
<th>Code</th>
<th>Mavg</th>
<th>Wavg</th>
<th>Quality</th>
<th>Quantity</th>
<th>Dimensions</th>
<th>Location</th>
<th>Timing</th>
<th>Payment terms</th>
<th>UOM</th>
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<td>TSIPM00</td>
<td>Basis TSI Iron Ore Fines 62% Fe CFR China assessment</td>
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<td>Basis TSI Iron Ore Fines 62% Fe CFR China assessment</td>
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<tr>
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<td>CFR Qingdao</td>
<td>Month of prevailing assessment date</td>
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month are quoted throughout the calendar month prior to rollover. Rollovers occur on the first working day of the month.

**General reporting principles applicable to all derivatives markets:** Platts only publishes and evaluates information from sources considered credible and creditworthy. Bids/offers of paper swaps received by Platts after published timing cut-off guidelines are disregarded and not published.

Firm, executable bids or offers posted onto Platts Metals Alert page 700 are taken into consideration for assessments. Assessments are a reflection of deals and bid/offers and are subject to careful review. Information is cross-checked to ensure data integrity. Assessments reflect the value of market on close. Illiquid markets may be assessed relative to more active benchmarks with more accurate price discovery. Transactions done after market close are disregarded.

**Brief explanation of derivatives terminology:**

**Swap:** Swaps or ‘paper’ are risk management tools which allow users to lock in values by transforming floating price risk to fixed or fixed to floating. Swaps are also used as a speculative tool. Paper markets are very reactive and provide players with an instant feedback of market conditions. Platts reflects the immediate changes in swaps market values as market heards on Platts Metals Alert page 700.

**Financial settlement:** Unlike physically-settled forward cargo trades, paper swaps are financially-settled derivative contracts. For example, the difference between buying an "April iron ore cargo" and an "April iron ore swap" is this: in the first case the buyer would take delivery of a cargo of the product, while in the second case the buyer would pay (or be paid) the difference between the swap price and the average of Platts’ iron ore cargo assessments in April.

**Month:** A calendar monthly swap is quoted for the full month calendar month, i.e. from the first to the last business working day in the month. Then the monthly swap assessment is rolled over.

**Quarter:** Quarters are defined as calendar quarters, for example Q3 refers to July, August and September. Quarterly swap assessments roll four times a year on the first business days of January, April, July and October.

**Year:** A year is defined as a calendar year, for example 2015, i.e. from the first to the last business working day in that year.

**Time spreads:** Each market has its own timing structure, defined by the steepness of price backwardation or contango. This timing structure changes constantly, and a swaps market can develop around the correlations between prompt and forward timings. Swaps are frequently traded on a month against month basis, as well as quarter against quarter and year against year.
FREIGHT AND NETBACKS

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<th>Wavg</th>
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<th>Quantity</th>
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<td>CFR Rotterdam</td>
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<td>FOB Mormugao</td>
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Freight and Netbacks


The FOB netbacks published daily are automatically calculated using a formula that deducts the respective dry bulk freight assessments from the day’s IODEX 62% Fe iron ore assessments on a CFR Qingdao basis, assuming moisture commonly seen in ores of various origins. Reference ports are Port Hedland, Mormugao, Haldia/Paradip, Tubarao, Rotterdam, Saldanha Bay. The NW Europe IODEX netback is calculated by adding the Platts Tubarao to Rotterdam Capesize freight assessment to IODEX Brazil netback. All freight assessments and FOB netbacks are published in Platts SBB Steel Markets Daily and Platts Metals Alert PMA page MWI1106.
REVISION HISTORY

September 2018: Methodology & Specifications Guide Annual Review was conducted and clarifications made, including sections I-VI. Platts added details around the new iron ore seaborne brand assessments.

May 2018: Updated to reflect change in China’s VAT rate and consequent impact on the name of domestic concentrate assessment (SB01159).

January 2018: Updated to reflect TSI-IODEX methodology merger, additional assessment launches. On January 2, 2018, Platts merged the TSI-62% (TS01021) and IODEX-62% (IODBZ00) price series as well as the TSI-58%, 1.5% Alumina (TS01047) and the Platts 58% low-Alumina assessment (IONC580).

December 2017: Updated to reflect launch of Lump Premium swaps assessments.

November 2017: Added section describing use of floating price indications in iron ore assessments.

October 2017: Methodology & Specifications Guide Annual Review was conducted and clarifications made.

August 2017: This methodology guide was updated to reflect the increase in frequency of the lump premium assessment to daily from weekly, and to reflect the launch of the IOPEX port stock assessments.

February 2017: This methodology guide was updated to reflect the launch of a current month swap assessment (AAQTA00), from February 1, 2017.

September 2016: Methodology & Specifications Guide Annual Review was conducted and clarifications made.

July 2016: This methodology guide was updated to reflect the discontinuation of the daily 52%-Fe Iron Ore price assessment (IONC520), from July 1, 2016.

June 2016: This methodology guide was updated to reflect the discontinuation of the daily 63.5/63%-Fe Iron Ore price assessment (IODSC00) from June 1, 2016.

October 2015: This methodology guide was updated to include the new spot 65%-Fe blast furnace blast furnace pellet premium assessment which was launched October 7, 2015. The quarterly lump premium contract price section was also taken out as it is no longer relevant or utilized in the market. The moisture content for the IO Fines 65% Fe CFR China assessment was also updated.

July 2015: This methodology guide was updated to include product specifications for IOBFPO0 Atlantic Basin iron ore pellet premium and SB01095 Atlantic Basin Iron Ore Pellets FOB Basis, which was added effective July 1, 2015. The Platts DR pellet premium assessment was added, as well as details on the IODEX netback Rotterdam, both launched July 1, 2015.

May 2015: This methodology guide was updated to include the new phosphorus differential assessment which was launched May 18, 2014.

February 2015: This methodology guide was updated to include further description of Platts’ processes and practices in survey assessment environments.

July 2014: Platts revamped all Metals Methodology and Specification guides, including its Iron Ore guide, in July 2014. This revamp was completed to enhance the clarity and usefulness of all guides, and to introduce greater consistency of layout and structure across all published methodology guides. Methodologies for market coverage were not changed through this revamp, unless specifically noted in the methodology guide itself.